E/CONF.39/D/13
SUMMARY
27 Sept.1962
ORIGINAL : ENGLISH

UNITED NATIONS CONFERENCE
ON THE APPLICATION OF SCIENCE AND TECHNOLOGY
FOR THE BENEFIT OF THE LESS DEVELOPED AREAS

SUMMARY

Agenda Item: D.4.2

Portugal

APPLICATION OF INSTRUMENTAL ANALYTICAL METHODS FOR IRON, TIN, LEAD AND ZINC IN CANNED FISH

By M. T. ÁGUAS DA SILVA,
B. Sc. (Chem. Eng.),
and INEZ SOARES
B. Sc. (F. C. L.),
Chemistry Division,
Instituto Nacional de Investigação Industrial,
Lisboa

Papers have been contributed to the United Nations Conference on the Application of Science and Technology for the Benefit of the Less Developed Areas as working papers for that Conference. They are published as presented by the contributors, and the contents and the views expressed are those of the contributors. (See notes overleaf.)

NOTES

1. Papers selected for inclusion in General Sessions will be available at the Conference in the following official languages of the United Nations: English, French, Russian and Spanish.

2. Papers selected for inclusion in Specialized Sessions will be available at the Conference in only one of the above official languages.

3. Summaries of all papers, as submitted by contributors, will be available at the Conference in the following official languages of the United Nations: English, French, Russian and Spanish.

4. Papers and summaries will not be available for general distribution in advance of the Conference. They will be published in advance in limited quantities only for the use of delegations of participating governments and of other authorized participants. Post-Conference publication and general distribution of the Conference Proceedings will follow United Nations practices as laid down by the United Nations Publications Board.

APPLICATION OF INSTRUMENTAL ANALYTICAL METHODS FOR IRON, TIN, LEAD AND ZINC IN CANNED FISH

M. T. Águas da Silva
B. Sc. (Chem. Eng.) (I.S.T.)

M. Inez Soares
B. Sc. (F.C.L.)

Chemistry Division, Instituto Nacional de Investigação Industrial, Lisboa.

SUMMARY

Since the determination of metallic traces in canned fish is a problem of great practical importance, rapid and accurate analytical techniques are needed which were developed and tested, as will be described.

So far, methdds for determining iron, tin, lead and zinc, have been developed, preference having been given these cations because of the following:

- iron and tin since their presence in canned goods clearly indicates if any corrosion of the tins occurred,
- lead because it is toxic if present in food above certain limits and,
- zinc by virtue of the disagreable metallic taste it imparts to food.

Spectrophotometric and polarographic techniques were used, the former for iron only and the latter for the other cations.

Iron was determined by means of 1,10-phenanthroline at 490 mμ.

Tin was determined in a base electrolyte consisting of 4M ammonium chloride and 1M hydrochloric acid.

For lead determination 0.1M potassium hydroxide and 0.03M triethanolamine solutions were used as base electrolyte.

For zinc the base electrolyte was 1M ammonium chloride, 1M ammonium hydroxide solutions.

Organic matter was destroyed by sulphonitric treatment followed by perchloric oxidation, with final residue solution in dilute hydrochloric acid.

The average deviation on the results are of the order of 5%.

Series of the tins of canned sardine and tunny-fish from different makers, in different types of packing and with different manufacturing dates, were tested.

May 1962

S - 33 E - Oct. 1962 - 1,500